

## Curriculum Vitae

### Scott C. Mest

Associate Research Scientist  
Planetary Science Institute

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### Research Interests

- Planetary geology, geomorphology, remote sensing
- Utilization of spacecraft and airborne remote sensing data for geologic analyses of planetary surfaces and processes
- Hydrologic modeling
- Surface modification, topographic change of planetary surfaces

### Education

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|-----------|---|
| 1999-2004 | <b>University of Pittsburgh</b> , Pittsburgh, PA<br>Doctorate in Planetary Geology; October 2004<br>Dissertation: <i>Evolution of the Martian Highlands: Implications from Drainage Basin Characteristics and Valley Network Morphometry</i> . 294 pp.<br>(Faculty Advisor: David Crown), |
| 1995-1998 | <b>University of Pittsburgh</b> , Pittsburgh, PA<br>Master of Science in Planetary Geology, August 1998<br>Thesis: <i>Geologic History of the Reull Vallis Region, Mars</i> , 269 pp.<br>(Faculty Advisor: David Crown)   |
| 1990-1995 | <b>West Chester University of Pennsylvania</b> , West Chester, PA<br>Bachelor of Science in Geology, May 1995   |

### Employment

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|-------------------|---|
| Jan. '06-Oct. '07 | Oak Ridge Associated Universities, NASA Postdoctoral Program, Research Scientist; NASA Goddard Space Flight Center, Planetary Geodynamics Laboratory, Code 698. |
| Oct. '04-Dec. '05 | National Research Council Postdoctoral Research Scientist; NASA Goddard Space Flight Center, Planetary Geodynamics Laboratory, Code 698.                        |
| 1996-1997         | Teaching Assistant, Department of Geology and Planetary Science, University of Pittsburgh   |
| 1997-2001         | Teaching Fellow, Department of Geology and Planetary Science, University of Pittsburgh  |
| 1998-2000         | Graduate Research Assistant, Department of Geology and Planetary Science, University of Pittsburgh  |

### Awards

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|-------------------|---|
| July '01-Oct. '04 | NASA Graduate Student Researcher Program Fellowship through Geodynamics Branch, Laboratory for Terrestrial Physics, Goddard Space Flight Center, Greenbelt, MD. Technical Advisor Dr. Herbert V. Frey, Univ. of Pittsburgh Faculty Advisor Dr. David A. Crown |
| May-Aug. 2002     | Andrew Mellon Predoctoral Fellowship, University of Pittsburgh; research topic: <i>Drainage basins in the highlands of Mars</i> . Faculty Advisor Dr. David A. Crown  |
| Fall 2002         | NASA Pennsylvania Space Grant Consortium Fellowship   |

Fall 1997	NASA Pennsylvania Space Grant Consortium Fellowship
Summer 1997	Jet Propulsion Laboratory Summer School for Planetary Science entitled “In Situ Exploration and Sample Return”, California Institute of Technology, Pasadena, CA.
Summer 1997	Smithsonian Graduate Student Fellowship at the Center for Earth and Planetary Studies, National Air and Space Museum, Smithsonian Institution, Washington, D.C.
1997	Stephen E. Dwornik Planetary Geoscience Student Award (Geological Society of America, Planetary Geology Division) – Honorable Mention for <i>Geologic Mapping of the Reull Vallis Region, Mars</i> , Lunar and Planetary Science Conference XXVIII.
1997	Graduate and Professional Student Association Travel Grant (University of Pittsburgh) to attend Lunar and Planetary Science Conference XXVIII.

### **Professional Activities**

Jan. 2004-present	Member Geologic Mapping Subcommittee (GeMS) of NASA’s Planetary Cartography and Geologic Mapping Working Group
June '06-present	Member Lunar Exploration and Science Working Group (LESWG), NASA Goddard Space Flight Center
November 2007	NASA Mars Fundamental Research Program review panel
June '06-Aug. '07	Co-chair of the Geodesy, Cartography and Navigation LESWG Focus Group, NASA Goddard Space Flight Center
November 2003	NASA Mars Data Analysis Program review panel
October 2001	Co-Organizer and Instructor: Pennsylvania Junior Academy of Science Workshop - <u>Our Solar System</u> .
November 2000	Co-Organizer and Instructor: Pennsylvania Junior Academy of Science Workshop - <u>The Surfaces of the Terrestrial Planets</u> .
October 2000	Instructor: Pennsylvania Junior Academy of Science Workshop – <u>Our Solar System</u> .
August 2000	Assistant Instructor: EventScope Workshop and teacher training.
November 1997	Assistant Instructor: Carnegie Science Academy Workshop – <u>Geology from Space</u> .
November 1997	Instructor: Pennsylvania Junior Academy of Science Workshop – <u>The Surface of Mars</u> .
September 1997	Instructor: Pennsylvania Junior Academy of Science Workshop – <u>Life in the Universe</u> .
September 1996	Instructor: Pennsylvania Junior Academy of Science; Workshop – <u>The Surface of Mars</u> .

### **Invited Lectures**

June 1997	Center for Earth and Planetary Studies and Education Department of the National Air and Space Museum, Smithsonian Institution; Workshop - <u>Exploring the Planets Institute, Planetary Mapping Techniques</u> .
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### **Academic Organizations**

1995-1997	Co-representative for the Department of Geology and Planetary Science to the Faculty of Arts and Sciences, University of Pittsburgh
1993-2004	Member Sigma Gamma Epsilon – Earth Science Honor Society

### **Professional Organizations**

1996-2004	Member – Geological Society of America
1999-2004	Member – American Geophysical Union

### **Technical Skills**

Extensive use of:	ArcGIS 9.2/ArcMap, ISIS, Adobe products (Illustrator, Photoshop, Acrobat), Microsoft Office (Word, Excel, Powerpoint)
Familiar with:	ENVI, ERMapper, ERDAS Imagine

## **Publications List**

### **Refereed Publications**

- Crown, D. A., L.F. Bleamaster III, and **S.C. Mest**, 2005, *Styles and timing of volatile-driven activity in the eastern Hellas region of Mars*, J. Geophys. Res., **110**, E12S22, doi:10.1029/2005JE002496.
- Mest, S.C.**, 2008, *Characteristics and distribution of impact crater interior deposits in Noachis Terra, Mars*, in preparation.
- Mest, S.C.**, and D.A. Crown, 2005, *Millochau crater, Mars: Infilling and erosion of an ancient highland impact crater*, Icarus, **175**, 335-359.
- Mest, S.C.**, and D.A. Crown, 2001, *Geology of the Reull Vallis region, Mars*, Icarus, **153**, 89-110.
- Mest, S.C.**, D.A. Crown, and W. Harbert, 2008, *Watershed modeling in the Terra Tyrrhena region of Mars*, J. Geophys. Res., in review.

### **Refereed Geologic Maps**

- Crown, D.A., and **S.C. Mest**, 2008, *Geologic map of MTM -30247, -40247, and -45247 Quadrangles, Reull Vallis region of Mars*, U.S. Geological Survey, in preparation.
- Crown, D.A., and **S.C. Mest**, 2008, *Geologic map of MTM -35237, -40237, and -45237 Quadrangles*, U.S. Geological Survey, in preparation.
- Mest, S.C.**, and D.A. Crown, 2006, *Geologic Map of MTM -20272 and -25272 Quadrangles, Terra Tyrrhena Region of Mars*, U.S. Geological Survey Scientific Investigations Map I-2934, scale 1:1,000,000.
- Mest, S.C.**, and D.A. Crown, 2003, *Geologic Map of MTM -45252 and -45257 Quadrangles, Reull Vallis Region of Mars*, U.S. Geological Survey Geologic Investigations Series Map I-2763.
- Mest, S.C.**, and D.A. Crown, 2002, *Geologic Map of MTM -40252 and -40257 Quadrangles, Reull Vallis Region of Mars*, U.S. Geological Survey Geologic Investigations Series Map I-2730.

### **Abstracts**

#### **2008**

- Mest, S.C.**, D.A. Crown, L.F. Bleamaster III, and J.F. Mustard, 2008, *Morphology, morphometry and distribution of craters in NW Hellas, Mars*, Lunar and Planetary Science Conference, XXXIX, Abstract **1704**, Lunar and Planetary Institute, Houston (CD-ROM).
- Petro, N.E, and **S.C. Mest**, 2008, *Investigating the cratering history of the South Pole-Aitken Basin*, Lunar and Planetary Science Conference, XXXVIX, Abstract **1685**, Lunar and Planetary Institute, Houston (CD-ROM).
- Van Arsdall, L.E., and **S.C. Mest**, 2008, *Geologic mapping of the Schrödinger Basin area, lunar south pole*, Lunar and Planetary Science Conference, XXXVIX, Abstract **1706**, Lunar and Planetary Institute, Houston (CD-ROM).

#### **2007**

- Crown, D.A., L.F. Bleamaster III, **S.C. Mest**, and J.F. Mustard, 2007, *Geology of the NW rim of the Hellas Basin*, Eos Trans. AGU, 88(52), Fall Meet. Suppl., Abstract **P41A-0189**.
- Mest, S.C.**, 2007, *Characteristics of impact crater interior deposits in Noachis Terra, Mars*, Lunar and Planetary Science Conference, XXXVIII, Abstract **1841**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, 2007, *Updated geologic and geomorphic maps of the lunar North and South poles*, Lunar and Planetary Science Conference, XXXVIII, Abstract **1842**, Lunar and Planetary Institute, Houston (CD-ROM).

#### **2006**

- Mest, S.C.**, 2006, *Characteristics of impact crater interior deposits in the southern highlands of Mars*, Lunar and Planetary Science Conference, XXXVII, Abstract **2236**, Lunar and Planetary Institute, Houston (CD-ROM).

## 2005

- Crown, D.A., L.F. Bleamaster, **S.C. Mest**, and L.T. Teneva, 2005, *Styles and timing of volatile-driven activity in the eastern Hellas region of Mars*, Lunar and Planetary Science Conference, XXXVI, Abstract **2097**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, 2005, *Characteristics of impact craters and interior deposits: Analysis of the spatial and temporal distribution of volatiles in the highlands of Mars*, Workshop on the Role of Volatiles and Atmospheres on Martian Impact Craters, APL, Columbia, MD, Abstract **3014**.
- Mest, S.C.**, and D.A. Crown, 2005, *Impact crater deposits in the Martian highlands*, Lunar and Planetary Science Conference, XXXVI, Abstract **1785**, Lunar and Planetary Institute, Houston (CD-ROM).

## 2004

- Mest, S.C.**, and D.A. Crown, 2004, *Morphologic and morphometric analyses of fluvial systems in the southern highlands of Mars* (abstract), in Workshop on Mars Valley Networks, Abstract **Mest-MVN2004**, Smithsonian Institution, Washington, DC (CD-ROM).
- Crown, D.A., L.F. Bleamaster III and **S.C. Mest**, 2004, *Geologic evolution of Dao Vallis, Mars*, Lunar and Planetary Science Conference, XXXV, Abstract **1185**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, and D.A. Crown, 2004, *Morphologic and morphometric analyses of fluvial systems in the southern highlands of Mars*, Lunar and Planetary Science Conference, XXXV, Abstract **1844**, Lunar and Planetary Institute, Houston (CD-ROM).

## 2003

- Crown, D.A., and **S.C. Mest**, 2003, *Geologic mapping of the martian highlands: Eastern Promethei Terra/southeast Hesperia Planum*, in Abstracts of the Annual Planetary Geologic Mappers Meeting, June 19-20, 2003, Providence, RI.
- Crown, D.A., L.F. Bleamaster III and **S.C. Mest**, 2003, *Geologic evolution of Dao Vallis, Mars*, in EOS Trans. AGU, 84(46), Fall Meet. Suppl., Abstract **P11B-1035**.
- Crown, D.A., S.B.Z. McElfresh, T.L. Pierce and **S.C. Mest**, 2003, *Geomorphology of debris aprons in the eastern Hellas region of Mars*, Lunar and Planetary Science Conference XXXIV, Abstract **1126**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, and D.A. Crown, 2003, *Geologic map of MTM -20272 and -25272 quadrangles, Terra Tyrrhena region of Mars*, in Abstracts of the Annual Planetary Geologic Mappers Meeting, June 19-20, 2003, Providence, RI.
- Mest, S.C.**, and D.A. Crown, 2003, *Geology of crater Millochau, Terra Tyrrhena region of Mars*, Lunar and Planetary Science Conference XXXIV, Abstract **1942**, Lunar and Planetary Institute, Houston (CD-ROM).

## 2002

- Crown, D.A., and **S.C. Mest**, 2002, *Geologic mapping of the Martian highlands: Terra Tyrrhena and Promethei Terra*, in Abstracts of the Annual Planetary Geologic Mappers Meeting, June 20-21, 2002, Tempe, Arizona, USGS Open-File Report 02-412.
- Crown, D.A., T.L. Pierce, S.B.Z. McElfresh and **S.C. Mest**, 2002, *Debris aprons in the eastern Hellas region of Mars: Implications for styles and rates of highland degradation*, Lunar and Planetary Science Conference XXXIII, Abstract **1642**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, and D.A. Crown, 2002, *Ancient fluvial activity in the Martian highlands*, Geol. Soc. Am. Abstracts with Programs, 34(6), Abstract **40831**.
- Mest, S.C.**, and D.A. Crown, 2002, *Geology of MTM Quadrangles -20272 and -25272, Terra Tyrrhena region of Mars*, Lunar and Planetary Science Conference XXXIII, Abstract **1730**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, D.A. Crown and W. Harbert, 2002, *Fluvial degradation of the highlands: The Terra Tyrrhena region of Mars*, Lunar and Planetary Science Conference XXXIII, Abstract **1892**, Lunar and Planetary Institute, Houston (CD-ROM).

## 2001

- Crown, D.A., and **S.C. Mest**, 2001, *Circum-Hellas outflow channels: New views from Mars Global Surveyor*, Lunar and Planetary Science Conference XXXII, Abstract **1344**, Lunar and Planetary Institute, Houston (CD-ROM).
- Crown, D.A., and **S.C. Mest**, 2001, *Geologic mapping of the circum-Hellas highlands of Mars*, in Abstracts of the Annual Planetary Geologic Mappers Meeting, June 18-19, 2001 Albuquerque, New Mexico, USGS Open-File Report 02-78.
- Mest, S.C.**, and D.A. Crown, 2001, *Fluvial degradation of the circum-Hellas highlands of Mars*, abstract submitted to the Workshop on the Martian Highlands and Mojave Desert Analogs, October 20-27, 2001, Las Vegas, NV and Barstow, CA, Abstract **4014**.
- Mest, S.C.**, D.A. Crown and W. Harbert, 2001, *Highland drainage basins and valley networks in the eastern Hellas region of Mars*, Lunar and Planetary Science Conference XXXII, Abstract **1457**, Lunar and Planetary Institute, Houston (CD-ROM).
- Mest, S.C.**, W. Harbert and D.A. Crown, 2001, *Application of Geographical Information System Arc/Info grid-based surface hydrologic modeling to the eastern Hellas region, Mars*, in EOS Trans. AGU, 82, Spring Meet. Suppl., Abstract **P31A-05**.

## 2000

- Crown, D.A., and **S.C. Mest**, 2000, *Geologic mapping of MTM Quadrangles -45252 and -47252, Reull Vallis region of Mars*, Lunar and Planetary Science Conference, XXXI, Abstract **#1969**, Lunar and Planetary Institute, Houston, (CD-ROM).
- Crown, D.A., and **S.C. Mest**, 2000, *Geologic mapping of the Reull Vallis region of Mars*, in Abstracts of the Annual Planetary Geologic Mappers Meeting, June 22-24, 2000, Flagstaff, Arizona, USGS Open-File Report 01-018.
- Crown, D.A., **S.C. Mest** and T.L. Pierce, 2000, *Highland degradation in the eastern Hellas region of Mars*, in EOS Trans. AGU, 81, Spring Meet. Suppl., Abstract **F783**.
- Mest, S.C.**, and D.A. Crown, 2000, *Geologic mapping of MTM quadrangles -40252 and -40257, Reull Vallis region, Mars*, Lunar and Planetary Science Conference XXXI, Abstract **1462**, Lunar and Planetary Institute, Houston (CD-ROM).

## 1998

- Mest, S.C.**, D.A. Crown, R.A. Craddock and J.R. Zimbelman, 1998, *Topographic Characteristics of outflow channels in the Martian southern highlands*, Lunar and Planetary Science Conference, XXIX, Abstract **1334**, Lunar and Planetary Institute, Houston (CD-ROM).

## 1997

- Crown, D.A., and **S.C. Mest**, 1997, *Dao, Harmakhis, and Reull Valles: The role of outflow channels in the degradation of the circum-Hellas highlands of Mars*, Lunar Planet. Sci. Conf., XXVIII, 269-270.
- Crown, D.A., **S.C. Mest** and K.H. Stewart, 1997, *Degradation of the Martian cratered highlands: The role of circum-Hellas outflow channels and constraints on the timing of volatile-driven activity*, Conference on Early Mars: Geologic and Hydrologic Evolution, Physical and Chemical Environments, and the Implications for Life, LPI Contribution No. 916, p. 22-23, Lunar and Planetary Institute, Houston.
- Mest, S.C.**, and D.A. Crown, 1997, *Geologic mapping of the Reull Vallis region, Mars*, Lunar Planet. Sci. Conf., XXVIII, 945-946.

## 1996

- Mest, S.C.**, and D.A. Crown, 1996, *Geologic mapping of the Reull Vallis region, Mars*, Geol. Soc. Amer., Abstracts with Programs, A-128.
- Mest, S.C.**, and D.A. Crown, 1996, *Relationships between wrinkle ridges and craters in Hesperia Planum: Constraints on the timing of ridge formation*, Lunar and Planet. Sci. Conf., XXVII, 869-870.